

**WHAT IS CLAIMED IS:**

1. A thin film transistor array panel for an X-ray detector, the panel comprising:

a gate wire formed on an insulating substrate and including a gate lines and a  
5 gate electrode connected to the gate line;

a gate insulating layer formed on the gate wire;

a semiconductor layer formed on the gate insulating layer;

a data wire formed on the gate insulating layer and including a data line  
intersecting the gate line, a source electrode connected to the data line and disposed on  
10 the semiconductor layer at least in part, and a drain electrode disposed on the  
semiconductor layer at least in part and separated from the source electrode;

a photo diode including a first electrode connected to the drain electrode, a  
second electrode facing the first electrode, and a photo-conductive layer disposed  
between the first electrode and the second electrode;

15 a bias signal line connected to the second electrode; and

a light blocking layer covering the photo diode.

2. The panel of claim 1, wherein the photo-conductive layer comprises a  
first amorphous silicon film containing N type impurity, a second amorphous silicon  
film without impurity, and a third amorphous silicon film containing P type impurity.

20 3. A thin film transistor array panel for an X-ray detector, the panel  
comprising:

a gate wire formed on an insulating substrate and including a gate lines and a  
gate electrode connected to the gate line;

a gate insulating layer formed on the gate wire;

25 a semiconductor layer formed on the gate insulating layer;

a data wire formed on the gate insulating layer and including a data line  
intersecting the gate line, a source electrode connected to the data line and disposed on  
the semiconductor layer at least in part, and a drain electrode disposed on the  
semiconductor layer at least in part and separated from the source electrode;

30 a photo diode including a first electrode connected to the drain electrode, a  
second electrode facing the first electrode, and a photo-conductive layer disposed  
between the first electrode and the second electrode; and

a bias signal line connected to the second electrode and including a light blocking layer covering the photo diode.

4. The panel of claim 3, wherein the photo-conductive layer comprises a first amorphous silicon film containing N type impurity, a second amorphous silicon  
5 film without impurity, and a third amorphous silicon film containing P type impurity.

5. A thin film transistor array panel for an X-ray detector, the panel comprising:

a gate wire formed on an insulating substrate and including a gate lines and a gate electrode connected to the gate line;

10 a gate insulating layer formed on the gate wire;

a semiconductor layer formed on the gate insulating layer;

a data wire formed on the gate insulating layer and including a data line intersecting the gate line, a source electrode connected to the data line and disposed on the semiconductor layer at least in part, and a drain electrode disposed on the  
15 semiconductor layer at least in part and separated from the source electrode;

a photo diode including a first electrode connected to the drain electrode, a second electrode facing the first electrode, and a photo-conductive layer disposed between the first electrode and the second electrode; and

a bias signal line connected to the second electrode,

20 wherein the semiconductor layer is disconnected between the source electrode and the drain electrode.

6. The panel of claim 5, wherein the photo-conductive layer comprises a first amorphous silicon film containing N type impurity, a second amorphous silicon film without impurity, and a third amorphous silicon film containing P type impurity.